

REMARKS

The present Response does not amend, add, or cancel any claims. Hence, claims 13-26 remain pending in the application. Claims 13, 17, 20, and 25 are independent.

In the Office Action of November 19, 2004, the Examiner rejected claims 13-26 under 35 U.S.C. § 103(a) as being unpatentable over “admitted prior art” in view of U.S. Patent No. 5,271,798 issued to Sandhu et al. (“Sandhu”), and further in view of U.S. Patent 5,700,176 issued to Potter (“Potter”). These rejections are respectfully traversed. Accordingly, reconsideration and allowance of the application are requested.

The Examiner rejected Claims 13-26 as obvious over “admitted prior art” in view of Sandhu, and further in view of Potter. The Examiner alleges that the “background” section of the application discloses a method of forming an FED that includes, in part, selectively etching openings through the conductive and insulating layers. The Examiner further alleges that the background section admits that application of a wet etchant to uncover a structure is known in the art to effectively clear the marks without the use of photolithography. The Examiner specifically cites reference to page 4, para. 2 of the specification.

Regarding the references, the Examiner admits that Sandhu fails to disclose a semiconductor manufacturing method comprising a step of selectively spraying a wet etchant on an FED structure. Potter is relied upon as teaching a process for producing FEDs that utilizes fabrication processes and equipment similar to those used for semiconductor fabrication. The Office Action concludes that it would have been obvious to one of ordinary skill in the art to construct an FED with the method of Sandhu and background section to allow for less pure materials and cheaper manufacturing methods.

Applicant continues to disagree with the assertions made in the Office Action. It again appears that various passages of the specification may have been somewhat misinterpreted and/or confusingly read. First, Applicant appreciates the Examiner’s clarification of the rejection with regards to the background of the application. Nonetheless, there appear to be some confusion. The background of the present application does two things, (1) establishes

problems associated with current methods and (2) introduces Applicant's solution for addressing these problems.

With respect to the shortcomings of current methodologies, the background of the application does not provide any disclosure or suggestion for selectively etching through the conductive and insulating layers, as defined in the instant claims. Rather, the background discusses a conventional photolithography step for etching the insulating layer and conductive layer. This is merely a discussion of conventional photolithography which involve development, etch, and strip sequences. The background (at the cited passage) goes on to state, "These photolithography processes are costly, complex and time consuming."

The paragraph identified in the Office Action (page 4, para. 2) is nothing more than a transitional statement which introduces Applicant's invention and how it addresses the shortcomings of the prior art. It is not "admitted prior art" as suggested in the Office Action. Continued review of the specification clearly supports this interpretation. For example, the two paragraphs immediately following the alleged "admitted prior art" clearly state that the present invention provides, as one objective, a method of manufacturing a flat panel display device that includes localized removal of materials. Another objective is to reduce the number of photolithography/etch/strip sequences. The paragraph which immediately follows indicates that the invention achieves these objectives, in part, by "selectively spraying wet etchant over the structures to be uncovered." The process is intended to reduce the number of photolithography, etch, and strip sequences normally required to make the device. The remainder of the disclosure further supports the fact that the paragraph cited in the Office Action, in fact, discusses Applicant's invention, and not the prior art.

Next the Office Action indicates that Sandhu discloses localized application of etchant to a structure. However, the teachings of Sandhu are different from, and fail to disclose or suggest, the teachings of the present invention. The method of Sandhu requires a specialized apparatus for applying the etchant. The apparatus must be positioned over the wafer surface to create a leak-proof seal. The etchant is then dispensed within the leak-proof seal. Sandhu

provides absolutely no disclosure or suggestion that could possibly lead to the belief that their invention could be practiced without such an apparatus.

In contrast to the teachings of Sandhu, the present invention does not require any such devices, or the creation of a leak-proof seal. The etchant is locally applied directly to the wafer for clearing structures without the requirement of a leak-proof seal. Such a technique is clearly not shown or suggested by Sandhu. One or more embodiments of the present invention can additionally allow for movement of the spray nozzle for etching larger and/or multiple structures. Again this is not possible with the applied references due to the requirement of a specialized apparatus to create a leak-proof seal. As discussed in the specification, the selective etching can avoid costly photolithography, etch, and strip sequences. See page 8, para. 2.

Applicant maintains that the Office Action has failed to make a *prima facie* case of obviousness. In particular, Applicant notes that the M.P.E.P. requires that the prior art references clearly teach or suggest all the claim limitations. This not the case with respect to Applicant's invention.

According to one or more embodiments of the present invention, various methods are provided for making FEDs. The inventions defined by the independent claims all require a step of selectively etching. For example, independent claim 13 recites, in part, "wherein said step of making a cathode assembly includes the step of locally applying an etchant to uncover a structure in the peripheral area of the cathode assembly." Independent claim 17 recites, in part, "wherein said step of making an anode assembly includes the step of locally applying an etchant to uncover a structure in the peripheral region of the anode assembly." Independent claim 20 recites, in part, "selectively etching openings through the conductive and insulating layers to expose the micropoints, with walls defining the openings being spaced away from the micropoints." Independent claim 25 recites, in part, "selectively applying localized etchant on the alignment marks while inhibiting application of the etchant on the central region to clear the marks of material deposited thereon."

The combination of applied references simply fail to either disclose or suggest localized application of an etchant as set forth in the claimed invention.

It is therefore respectfully submitted that independent claims 13, 17, 20, and 25 are patentable over the art of record.

Claims 14-16 depend from independent claims 13. Claims 18 and 19 depend from independent claim 17. Claims 21-24 depend from independent claim 20. Claim 26 depends from independent claims 25. These claims are therefore believed allowable for at least the reasons set forth above. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

For the reasons stated above, it is respectfully submitted that the application and all of the pending claims (13-26) are now in condition for allowance. Accordingly, the issuance of a Notice of Allowance is respectfully requested, and courteously solicited.


The Examiner is invited to contact the undersigned, if it is believed that such contact would further the examination of the present application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees, which may be required for this Amendment, or credit any overpayment to deposit account no. 08-0219.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to deposit account no. 08-0219.

Respectfully submitted,


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